

ABSTRACT OF THE DISCLOSURE

A ceramic armor is disclosed in several embodiments. In a first embodiment, a metal base plate has a metal frame assembled on it having a central opening into which the ceramic material and stiffening plate are placed. A cover plate is placed over the frame to enclose the ceramic material on all sides. In a second embodiment, the frame has an open central area that has two crossing walls that define four sub-chambers. Four sets of ceramic material and stiffening plate are placed in the respective sub-chambers and a covering plate is placed over them. In a further embodiment, the frame has a plurality of cavities mechanically formed in it. A stiffening plate and a ceramic tile or plate are placed in each cavity and a cover plate is placed over the frame. The metal used to encapsulate the ceramic material may, if desired, comprise a Titanium alloy such as Ti-6Al-4V, and the ceramic material may comprise Silicon Carbide, Boron Carbide, Tungsten Carbide, Titanium Diboride, Aluminum Oxide or Aluminum Nitride. The stiffening plate is preferably made of a Ti-TiB cermet composite but may also be comprised of an armor ceramic such as WC, TiB₂, Al₂O₃ or B₄C. A hot pressing procedure is carried out on the armor to cause the metal to plastically deform about the encapsulated ceramic material.